# U.S. ENVIRONMENTAL PROTECTION AGENCY
# POLLUTION REPORT

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## I. HEADING

DATE: February 14, 2003

SUBJECT: Kay Drive Mercury Spill, Zanesville, Muskingum County, OH

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POLREP #: Initial and Final Pollution Report (POLREP #1)

## II. BACKGROUND

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|---|---|
| Site ID No.: | Pending |
| Delivery Order Number: | ER TO# Pending |
| Response Authority: | CERCLA |
| NPL Status: | Not on NPL |
| State Notification: | Yes - Referral from Ohio EPA |
| Latitude/Longitude: | 39°59'34" North / 82°01'26" West |
| Start Date: | February 7, 2003 |
| Demobilization Date: | February 8, 2003 |
| Completion Date: | Pending (Disposal anticipated 2/17-21/03) |

## III. SITE INFORMATION

### A. Incident Category

Emergency Response Elemental Mercury Spill

## B. Site Description

### 1. Site Location

The elemental mercury spill occurred in a private residence located at NON-RESPONSIVE in Zanesville, Muskingum County, Ohio. The residence consists of one floor and an unfinished basement. The first floor contains an entrance foyer and living room, a dining room, a kitchen, three bedrooms, and two bathrooms.

### 2. Description of Threat

On the evening of February 7, 2003, at approximately 6:00 PM, the residents discovered an old jar containing elemental mercury in a closet in the home. The resident moved the jar from the closet and accidently spilled the mercury in the living room of their residence. Elemental mercury spilled onto an end table, a recliner and the living room carpet. The mercury also possibly spilled onto the clothing worn by the residents at the time of the spill. The resident attempted to clean up the elemental mercury with a standard, heavy-duty vacuum cleaner. The resident then notified the Falls Fire Department of the spill. The Falls Fire Department notified the Ohio Environmental Protection Agency (Ohio EPA) Southeast District Office (SEDO) in Logan, Ohio of the spill, the Zanesville-Muskingum County Health Department (MCHD), and the Muskingum County Disaster Services (MCDS). Ohio EPA referred the site to the U.S. Environmental Protection Agency (U.S. EPA) for assistance.

The amount of elemental mercury present in the house posed a human health threat to the two elderly residents, both of whom suffer from multiple health problems. Mercury is a silvery liquid at room temperature, but becomes an odorless, colorless vapor at temperatures above 70 degrees Fahrenheit. Mercury vapor is highly toxic when inhaled, especially for sensitive populations such as infants, children, and the elderly. At high levels, mercury exposure can result in damage to the brain and kidneys.

# IV. RESPONSE INFORMATION

## A. Situation

### 1. Current Situation:

U.S. EPA mobilized the Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) on February 8, 2003, and initiated air monitoring activities using a Lumex RA-915 (Lumex) mercury vapor analyzer. The residents had removed their affected clothing and left it and the vacuum in the spill area and vacated the house on the evening of February 7, 2003. The Environmental Response, Inc. (ER), Emergency and Rapid Response Services (ERRS) contractor also mobilized to the site on February 8, 2003, to initiate clean-up operations. The clean-up activities were conducted from February 8 to 9, 2003. On February 9, 2003, Lumex air monitoring results documented appropriate reoccupation levels, and the residents subsequently moved back into the home.

### 2. Site Activities to Date:

On February 7, 2003, a jar containing an unknown quantity of mercury was discovered by a resident. The resident moved the jar of mercury to the living room where the elemental mercury accidently spilled from the container. The residents notified the Falls Fire Department who subsequently notified the Ohio EPA SEDO, the MCHD, and MCDS. Ohio EPA subsequently contacted the U.S. EPA for technical assistance. Following U.S. EPA recommendations, the residents opened the chimney flue for ventilation, removed their affected clothing and left it and the vacuum in the living room spill area. The residents then decided to vacate the house for the evening.

On February 8, 2003, U.S. EPA mobilized START to the scene to conduct air monitoring of the residence for the presence of mercury vapor using a Lumex. Initial mercury vapor concentrations in the breathing zone in the residence ranged from 6.0 to 8.0 micrograms per cubic meter ($\mu g/m^3$). The current acceptable health standard, as established by the Agency for Toxic Substances and Disease Registry (ATSDR) for mercury vapor concentrations in a residential setting is 1.0 $\mu g/m^3$ in the breathing zone. START observed beads of elemental mercury on the coffee table, a recliner, and the living room carpet. The jar that contained the elemental mercury was still on the end table and a small amount of mercury remained in the jar. Lines on the jar suggested that approximately 1/4 ounce of elemental mercury was spilled.

START screened the resident's vehicle for possible mercury contamination and found elevated levels on a rug in the backseat. After the rug was removed, the mercury levels returned to normal in the vehicle. START also monitored the hotel room where the residents stayed overnight, and all mercury vapor readings at the hotel were at background levels.

On February 8, 2003, at approximately 5:00 PM, ER arrived on site and began clean-up activities. The affected furniture was vacuumed with a mercury vacuum, and all items in the living room were bagged and removed from the living room for screening. The carpeting was removed from the living room as it appeared to be the only affected carpeting. START used the Lumex to screen the residence and recorded a high of 37.0 $\mu g/m^3$ in the breathing zone. A HgCs solution was sprayed on the living room floor and was allowed to sit for approximately 30 minutes before being removed with a clean water rinse. ER then began heating and ventilating the residence, utilizing both the existing furnace system and also supplemental heaters and large fans.

After approximately one hour of heating the residence, START screened the house with the Lumex and the breathing zone readings were approximately 2.0 to 4.0 $\mu g/m^3$. Thermometers were located in various rooms of the residence to verify that the overall inside temperature was approximately 75 °F. U.S. EPA instructed ER to keep the residence heated overnight, and to vent the residence every hour using turbo fans.

The bagged belongings were placed in the ER trailer with a heater and were allowed to heat for approximately 20 minutes. START screened each bag of items to determine if the item was contaminated with mercury. All items that were returned to the house had readings less than 1.5 $\mu g/m^3$ on the Lumex. Belongings that came in direct contact with the elemental mercury (carpeting, recliner, clothing, etc.) and had readings greater than 35 $\mu g/m^3$ werediscarded.

On February 9, 2003, at approximately 7:00 AM, the windows were closed and the thermostat was set at 75 °F. Remaining personal belongings were screened to determine if they were contaminated with mercury. A second recliner from the living room exhibited readings of 6.0 to 8.0 $\mu g/m^3$ after heating. The current acceptable level for returning belongings to a residence is 10.0 $\mu g/m^3$. U.S. EPA recommended that the recliner be stored in the garage until a warm sunny day, at which time placing the recliner in the sunlight would help vent the remaining mercury vapors from the cloth.

After approximately two hours of heating, START screened the residence and breathing zone levels were about 0.3 $\mu g/m^3$. Heating continued for another two hours and START screened the house with two Lumex instruments (one START and one U.S. EPA). Final 10-second average mercury vapor readings were collected in every room of the house. All final readings were less than 0.32 $\mu g/m^3$. Five 10-second average readings were collected in the spill area, and all readings were less than 0.34 $\mu g/m^3$. In addition to the 10-second average readings in the breathing zone, the entire house was screened (along the floor, in closets, etc.) and all readings were less than 0.34 $\mu g/m^3$.

ERRS returned all salvageable items to the residence and U.S. EPA informed the residents that they could reoccupy their home.

### B. Planned Removal Activities

All decontamination activities are completed at the residence. All mercury contaminated items (carpeting, area rugs, miscellaneous clothing, vacuum, and cleaning tools) have been removed from the home, and are staged in a 25-cubic yard box at the residence. Disposal arrangements are currently underway for the mercury contaminated material. Disposal activities are planned fort he week of February 17-21, 2003.

### C. Next Steps

All waste collected during the removal action will be transported to a U.S. EPA-approved, off-site facility for disposal sometime during the week of February 17-21, 2003.

### D. Key Issues

U.S. EPA updated Ohio EPA, MCHD and MCDS on daily activities as they progressed on-site. All agencies were notified of final mercury vapor readings in the residence after the decontamination was complete.

## V. COST INFORMATION

Estimated costs (as of February 10, 2003):

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| TTEMI START | $ 3,500 |
| ER ERRS | $10,000 |

**The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report is written. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.**